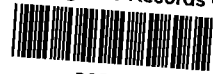


**MANUAL**

DRAFT

EPA Region 5 Records Ctr.



325300

## **INTERIM OPERATIONS AND MAINTENANCE MANUAL**

**DETREX RD/RA SOURCE CONTROL AREA  
DETREX FACILITY  
ASHTABULA, OH  
DOCKET NO. V-W-98-C-450**

*Prepared for*  
Detrex Corporation  
Ashtabula, OH

June 2008

**URS**

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Suite 600  
Cleveland, OH 44115  
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Project No. 13811443

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Detrex Corporation (Detrex) operates a facility at 1100 North State Road in Ashtabula, Ohio. This Interim Operations and Maintenance Manual has been developed to assist personnel with groundwater and Dense Non Aqueous Phase Liquid (DNAPL) recovery systems located on the northeast and southern areas of the property where soil and groundwater have been impacted by chlorinated volatile and semi-volatile organic compounds. The general site location is presented in **Figure 1**.

On March 26, 2008, Detrex received notification from U.S. EPA to provide an updated OM&M plan to U.S. EPA that describes current operations. On April 30, 2008, Detrex, URS and U.S. EPA held a meeting to discuss the letter and requested information. As a result of discussions regarding current operations, performance of the two new recovery wells installed in September 2007 and plans for upgrading the existing recovery system, U.S. EPA agreed that at this time an Interim Operations and Maintenance Manual could be submitted. Details of current OM&M activities are provided in the March 2004 OM&M Manual.

Currently there is one DNAPL recovery system and three groundwater recovery systems operating at the Detrex Facility (two passive systems and one active system). These recovery systems consist of the following:

- An active DNAPL recovery well system is located in the former pond area. This system has been installed to reduce the quantity of DNAPL onsite to the extent practical. This Soil Vapor Extraction (SVE) system and DNAPL recovery system is designed to provide a maximum of 200 cubic feet per minute (cfm) of vacuum to the twelve recovery wells in the network. The vacuum for the system is generated using a 200 cfm maximum flow (5 inches Hg) EG&G Rotron regenerative blower that will operate at a maximum of 30 scfm at a vacuum of 5.5 inches of Hg.

From the manifold, the SVE system influent is routed to a silencer followed by a 20-gallon capacity stainless steel AWS to remove free liquid. A 3-inch ball-float check valve prevents water in the AWS from entering the blower. An air diaphragm pump is operated manually to transfer collected water from the AWS to the 500-gallon settling tank. The vapor stream is then treated through two 1,800 pound vapor-phase granulated activated carbon (GAC) vessels, which are connected in series. Treated exhaust is then discharged to the atmosphere. SVE Blower Manufacturer's information is presented in Appendix C of the March 2004 OM&M Manual.

- A passive groundwater interceptor trench is located upgradient of the slurry wall. The groundwater interceptor trench collects groundwater from the facility and discharges to collection sumps and the water is treated in the onsite storm water treatment system.
- A passive groundwater interceptor trench is located beneath the DS Tributary on the north side of the facility. The groundwater interceptor trench collects groundwater and discharges it to the passive system upgradient of the slurry wall for treatment in the onsite storm water treatment system.

- An active groundwater interceptor trench is located along the entire southern portion of the facility close to Fields Brook. This active system has been installed voluntarily by Detrex Corporation in 2006 to provide future protection at Fields Brook in the event that impacted groundwater or DNAPL could potentially migrate offsite. Three sumps extract groundwater from the three collection trench segments. Groundwater is treated in the Detrex storm water treatment system.

The purpose of this Interim OM&M Plan is to provide a framework for existing conditions and operations of remedial systems in place and provide a plan for the following activities:

- Monitoring site-wide groundwater and the Southern Area Interceptor Trench
- Delineation of DNAPL in the Source Area
- Proposed Enhanced Fluid Recovery for DNAPL in the Source Area

Upon completion of DNAPL delineation and evaluating the proposed enhanced fluid recovery procedures for additional recovery wells, an updated OM&M manual will be prepared to describe operating conditions and procedures. The updated manual will include an analysis of additional resource requirements for addressing failure of systems in place and actions to address potential exceedances of groundwater surface water and air standards.

Remedial Actions at the Detrex Facility consists of several active DNAPL recovery wells, a downgradient barrier wall located in the northwest portion of the facility (slurry wall) with a groundwater collection trench located upgradient of the wall, a groundwater collection trench located in the DS Tributary and a downgradient interceptor trench located along the southern portion of the facility. **Figure 2** provides locations of the Remedial Systems in place.

DNAPL collected from recovery wells is collected and treated offsite. Groundwater from the slurry wall groundwater collection trench, the DS Tributary collection trench and the downgradient groundwater collection trench in the southern area is collected and treated in the Detrex storm water treatment system. The following sections describe system components.

## **2.1 DNAPL RECOVERY WELLS**

The recovery wells (RW-1 through RW-12) are designed to recover soil vapor and DNAPL from the unconsolidated sediments. The well boreholes have been advanced up to two feet into the top of the underlying clay till material. Total well depth varies from 23 to 30 feet below ground surface. The recovery wells are equipped with a 2-inch inside diameter (ID), Type 304 continuous wrap, and stainless steel screen in an 8-inch diameter borehole. The upper portion of each well is constructed of Type 304 stainless steel casing. Currently, nine of the 12 wells are operational.

Fifteen feet of screen have been installed in each well. Each well has been retrofitted with an internal blank section of 1.25-inch high density polyethylene (HDPE) liner to blank off the upper portion of screen to reduce the potential for the short circuiting of air to the ground surface. Approximately, one to two feet of screen area currently exposed. The well screens have 0.020-inch slots. The area below and within the annular space around the well screen is filled with a sand pack that extends one-half to one foot above the screen. Neat cement grout has been installed above the sandpack. Each well is equipped with a 1-inch stainless steel drop tube that extends to the bottom of each well. Several holes were machined into the sides of the drop tube throughout the bottom 3 to 4 feet DNAPL is recovered through the holes in the drop tube.

Since installation of the pilot DNAPL recovery system was completed in October 2002, a significant quantity of DNAPL has been recovered. However, not all system components are functioning as anticipated, resulting in a high level of maintenance. Between October 2002 and September 2003, two wells were capped and taken off-line due to short-circuiting of injected air (RW-2 and RW-11) or excessive sediment production (RW-4 and RW-10).

During Fall 2003 and Winter 2004, Detrex made several improvements to the treatment system, including the following:

- Installation of a 500 to 600-gallon vertical stainless steel settling tank with a rounded base to receive the system influent in the treatment building. The existing DNAPL/water separator was removed.

- Replacement of the existing pump houses with 8' x 8' x 8' wood-framed buildings with heating, insulation, lighting and ventilation. The existing recovery pumps and vacuum boxes were re-used, and the manifolds were rebuilt and equipped with pneumatically actuated solenoid valves.
- Replacement of existing HDPE piping (tubing) with stainless steel piping due to sagging between supports and concerns that low spots may freeze. Detrex also replaced the HDPE drop tubes with stainless steel drop tubes. Recently, Detrex has begun experimenting using carbon steel tubing in place of stainless steel tubing. The results will determine future material of construction of tubing.
- Redevelopment and sediment removal from all recovery wells using a rotary screw pump.
- Installation of sleeves in two existing wells to assess the effectiveness of reducing available screen length in reducing short-circuiting.

In September 2007, two additional recovery wells (RW-13 and RW-14) were installed to evaluate new well design parameters for enhancing DNAPL recovery. In order to reduce or eliminate silt build-up, several features were considered, which included increasing well bore diameter to 12-inches, changing the screen size from 0.020-inches to 0.010-inches, reducing the sand grain size to allow less than 5% of the sand pack and use of sonic drilling techniques to reduce smearing of borehole soils. Boring logs are included in **Appendix A**.

## **2.2 SOIL VAPOR EXTRACTION SYSTEM**

The Soil Vapor Extraction (SVE) system is designed to provide a maximum of 200 cubic feet per minute (cfm) of vacuum to the twelve recovery wells in the network. The vacuum for the system is generated using a 200 cfm maximum flow (5-inches Hg) EG&G Rotron regenerative blower that will operate at a maximum of 30 scfm at a vacuum of 5.5 inches of Hg.

From the manifold, the SVE system influent is routed to a silencer followed by a 20-gallon capacity stainless steel AWS to remove free liquid. A 3-inch ball-float check valve prevents water in the AWS from entering the blower. An air diaphragm pump is operated manually to transfer collected water from the AWS to the 500-gallon settling tank. The vapor stream is then treated through two 1,800 pound vapor-phase granulated activated carbon (GAC) vessels, which are connected in series. Treated exhaust is then discharged to the atmosphere. SVE Blower Manufacturer's information is presented in **Appendix C** of the 2004 OM&M Manual.

## **2.3 SLURRY WALL / GROUNDWATER COLLECTION TRENCH**

### ***Slurry Wall***

The vertical barrier wall is a passive remedial action that requires no operation or maintenance program.

***Groundwater Recovery Trench***

The groundwater collection trench is a passive remedial action that will require minimal maintenance. Inspection of the flow from the trench at the pump station and the associated cleanouts will be conducted on a quarterly basis. The inspection will identify any damage to the cleanouts or if the flow to the pump station is consistent, indicating no trench obstruction. If standing water is noted in the cleanouts, Detrex personnel will clean out the debris or a cleaning contractor will be retained.

The groundwater collected from the trench is transferred to the existing wastewater treatment system. Operation and maintenance of the water treatment system is described in the existing plan for the treatment system.

**2.4 DS TRIBUTARY GROUNDWATER COLLECTION TRENCH**

The interceptor trench beneath the DS Tributary is a passive remedial action that requires minimal maintenance. Inspection of the groundwater discharge from the trench at the pump station and the associated cleanouts will be conducted on a quarterly basis. The inspection will identify any damage to the cleanouts or if the flow from the trench is consistent, indicating no collection trench obstruction. If standing water is noted in the cleanouts, Detrex personnel will clean out the debris or a cleaning contractor will be retained.

The groundwater collected from the trench is transferred to the existing wastewater treatment system. Operation and maintenance for the treatment system are described in the existing plan for the treatment system.

The wastewater is discharged after treatment to an NPDES-permitted discharge point along Fields Brook. The existing NPDES monitoring program addresses the groundwater constituents identified at the Detrex facility.

**2.5 SOUTHERN AREA GROUNDWATER INTERCEPTOR TRENCH**

The groundwater collection trench that is located along the entire southern area of the Detrex facility is an active remedial action that requires minimal maintenance. The trench consists of three segments that each have a collection sump. The water from each sump is pumped to the storm water basin manhole and pumped to the onsite treatment system. The collection trenches have been excavated to the top of the clay till and intercept shallow groundwater discharge from the trench. Monitoring of the three sumps along the trench alignment will be conducted on a quarterly basis.

The following sections describe the current status of each remedial system component and provide path forward for continued system maintenance and potential upgrades for remedial activities.

### **3.1 DNAPL RECOVERY WELLS**

The Standard Operating Procedures for startup and shutdown procedures for the existing DNAPL Recovery System has not changed significantly since the 2004 OM&M Manual has been submitted. Process and Instrumentation Diagram (PID) is presented on **Figure 3A** and **3B**. The DNAPL Recovery System is shown on **Figure 4**. Details of the operating system are described in Sections 3.2, 3.3, and 3.4 of the 2004 OM&M Manual.

#### **3.1.1 Current Conditions and Issues**

At the present time only nine of the original twelve recovery wells are operational. The nine wells that are currently operating have recovered only 300 gallons of total fluids during the past six months. Descriptions of operating procedures are provided in monthly reports submitted to USEPA.

During the past seven years of operation, the quantity of fluid has significantly decreased in terms of quantity and duration of recovery. Also, due to the characteristics of the DNAPL, recovery equipment and conveyance piping becomes significantly corroded and requires a high level of maintenance. In 2007, two additional recovery wells were installed and recovery results were not significant and currently do not recovery DNAPL. As a result, Detrex is planning to conduct additional DNAPL delineation activities to evaluate location of DNAPL in subsurface materials and evaluate a recovery method that is more practical and cost effective for maintenance and equipment.

#### **3.1.2 New Recovery Well Conditions and Issues**

In September 2007, two new recovery wells were installed with larger borehole diameter and modified screen size and installation techniques. Since installation, these new wells have recovered only 5 gallons of total fluids. Currently the wells do not produce any material. Copies of boring logs are provided in **Appendix A**.

#### **3.1.3 Maintenance Tasks**

The DNAPL Recovery system will operate during normal working hours. A schedule of maintenance tasks is provided on **Table 1**. This table identifies the nature and frequency of maintenance inspections.

### **3.1.4 DNAPL Delineation Activities**

In order to provide locations for additional recovery wells that have the potential to extract DNAPL, additional investigations will be performed. Approximately 15 geoprobe boring locations will be advanced within the source area. The borings will be advanced to depths of approximately 30 feet. Sampling will be conducted in accordance with procedures described in the 2006 RD/RA Work Plan. DNAPL observations will be recorded and no analytical samples will be collected. Proposed locations area provided on **Figure 5**.

### **3.1.5 Proposed Enhanced Fluid Recovery**

As a result of operating the DNAPL recovery system since 2002 and installing several new wells and pumping configurations, there is considerable data to suggest that the volume of DNAPL estimated onsite is less than expected and the ability of current well designs to extract DNAPL from site clay soils is extremely limited. In order to continue recovery operations of DNAPL from subsurface soils to the extent practical, Detrex is proposing an alternate program for recovery operations. Since numerous attempts for extracting DNAPL from large diameter wells using both vacuum and surge techniques have resulted in limited success, a revised recovery approach that uses more recovery locations at a closer spacing is being proposed.

The following enhanced fluid recovery procedures are being proposed for new wells.

- Install a transect of small diameter recovery wells (3-inch diameter) along northern property line near the downgradient limit of the DNAPL source area. The transect will extend approximately 200-250 ft.
- Based on results from the DNAPL delineation activities recovery well spacing will be approximately 20 feet apart.
- Wells will be installed by using a geoprobe rig.
- Wells will consist of 1.5-inch diameter steel well screen/riser. Screen will be 15-ft long and extend to depths of 30-ft. A dedicated drop tube to allow recovery of DNAPL consisting of stainless steel will be placed in each well.
- Prepacked well screen will be used.

Upon completion of the wells, Detrex will fabricate a trailer mounted extraction pump and DNAPL storage container. The extraction pump will consist of a vacuum pump and holding tank. A dedicated drop tube will be placed into each well and any DNAPL or fluid will be recovered. Each well will be evacuated of fluids monthly. Prior to recovery operations, and following, the depth to fluids and thickness of DNAPL will be recorded. **Figure 6** provides a description of the proposed recovery well design.

Upon fabrication of the trailer mounted unit, the procedures for DNAPL recovery will be evaluated using existing monitoring wells where DNAPL is observed. The following wells will

be used for testing and included in monthly recovery operations when new wells are installed. (DETMW 05s, \_06s, \_07s, \_08s, and \_09s). Locations are provided in **Figure 5**.

### **3.1.6 Proposed Recovery Trench Option**

As discussed during the meeting on April 30, 2008, Detrex would like to have U.S. EPA consider the possibility of installing a recovery trench in the DNAPL source area. If acceptable to USEPA, Detrex will install the trench in place of recovery wells. At this time it expected that the trench would be approximately 25 feet deep and approximately 3 feet wide. The length and location will be determined based on results of DNAPL delineation activities. The trench would be backfilled with granular material and have a single recovery sump location. If a recovery trench were to be installed, the handling of excavation spoils would be an issue. In order to avoid excessive costs and health and safety issues, Detrex would like U.S. EPA to consider using the existing source area as a potential location to transport and relocate the excavation spoils. If this area where to be used Detrex would install a geosynthetic lined cap on the surface of the area where soils are placed. The location of the trench would need to consider site utilities and known areas where DNAPL has been identified.

## **3.2 DS TRIBUTARY INTERCEPTOR TRENCH**

### **3.2.1 Current Conditions**

At the present time, the operation and maintenance of the system in this area requires minimal operation and maintenance. The slurry wall is a passive remedial system and requires no operation or maintenance. The interceptor trench that is installed in the DS Tributary discharges to the groundwater recovery trench installed upgradient of the slurry wall. At this time there are no operational issues.

### **3.2.2 Maintenance Tasks**

Inspection of the groundwater discharge from the trenches at the pump station and associated cleanouts will be conducted on a quarterly basis. The inspections will identify any damage to the cleanouts or if flow from the trench is consistent. If standing water is noted in the cleanouts, Detrex personnel will clean out the debris. The groundwater that is collected from the trench is transferred from the pump station to the existing Detrex waste water treatment system. Operation and maintenance for the treatment system and pump station are described in the existing plan.

### **3.3 SOUTHERN AREA GROUNDWATER INTERCEPTOR TRENCH**

#### **3.3.1 Current Conditions and Maintenance**

The Southern Area groundwater interceptor trench has three trench segments and sumps. A description on installation was submitted to USEPA in January 2008. The three sumps collect groundwater and discharge to the lift station at the storm water retention pond. The pumps cycle on as water fills the sumps. Currently, water is removed at approximately 75 gpm at an operating time of 15 minutes per day. The discharge water is treated in the Detrex storm water treatment system. **Appendix B** provides details of the system installation. At the present time, the groundwater recovery system requires minimal maintenance.

### **3.4 OPERATION AND MAINTENANCE SCHEDULE**

The DNAPL recovery system and groundwater collection recovery trenches operate during normal working hours. The schedule presented in **Table 1** identifies the nature and frequency at anticipated maintenance tasks.

Monitoring will be performed to assess the effectiveness of each remedial system. Monitoring data will also be used to demonstrate that the DNAPL source area is stable and not migrating offsite.

#### **4.1 DNAPL RECOVERY WELLS**

The DNAPL system will be operated during normal working hours. Total flow volumes will be estimated and recorded daily. System maintenance personnel will prepare maintenance and inspection reports for recovery operations. These reports will be archived in the project files.

#### **4.2 SLURRY WALL / GROUNDWATER RECOVERY TRENCH / DS TRIBUTARY INTERCEPTOR TRENCH**

The storm water collection sump will be inspected quarterly for flow conditions. Additionally, the cleanouts will be inspected quarterly for damage. System maintenance personnel will prepare maintenance and inspection reports for flow conditions and operations. These reports will be archived in the project file.

#### **4.3 SOUTHERN AREA GROUNDWATER INTERCEPTOR TRENCH**

The three collection sumps will be inspected quarterly for flow conditions. The observation wells installed along the alignment will be inspected as needed. System maintenance personnel will prepare maintenance and inspection reports for recovery operations. These reports will be archived in the project file.

#### **4.4 GROUNDWATER MONITORING**

##### **4.4.1 Groundwater Monitoring Wells Sampling**

Groundwater elevations will be collected from monitoring wells located on the Detrex facility in the area of the DNAPL Recovery System and the groundwater interceptor trenches located upgradient of the slurry wall and the southern area. Groundwater elevations and DNAPL thickness (if any), will be measured on a quarterly basis. Groundwater samples will be collected on a quarterly basis. A listing of monitoring wells to be sampled is provided in **Table 2**. Samples will be analyzed for VOCs using the existing QAPP.

##### **4.4.2 Southern Area Groundwater Interceptor Trench Sump Sampling**

Groundwater samples will be collected from the three sumps that are located along the southern area collection trench. Groundwater samples from the sumps will be collected on a quarterly basis. Samples will be analyzed for VOCs using the existing QAPP. A listing of sumps to be sampled is provided in **Table 2**.

**4.5 QA/QC PROCEDURES**

All groundwater monitoring samples and collection sump samples will be analyzed for volatile organic compounds (VOC) using method 8260. Specific procedures for QA/QC and reporting are provided in Detrex QAPP, which was prepared in February 2007 and approved by U.S. EPA. An electronic copy of the QAPP is provided in **Appendix C**.

**5.1 POTENTIAL SAFETY ISSUES**

A project specific Health and Safety Plan has been prepared for Operation and Maintenance activities and site investigation activities. All personnel are required to read the Health and Safety Plan prior to mobilizing to the site. Potential safety issues associated with operations and maintenance of the DNAPL recovery included:

- Chemical hazards;
- Lockout / tagout;
- Heat stress / cold stress;
- Noise exposure;
- Hand safety; and
- Lifting safety.

**5.2 PROCEDURES**

Operation and maintenance of the operating systems include the following mandatory procedures:

- All work must be conducted in accordance with the HASP for O&M and the HASP for investigative work.
- Each task must be performed by personnel qualified to perform the tasks.

**6.1 OPERATING LOGS**

A record of operational inspection and maintenance activities shall be maintained for no less than five years. This log should include the name of the recorder, the date, flow totalizer readings, a record of the hour-meter readings for the blower and transfer pump, information on the operational status of system components, maintenance needs, and other information.

**6.2 LABORATORY RECORDS**

Laboratory records of system effluent sampling and groundwater monitoring shall be maintained in a Detrex-designated, central location for no less than five years.

**6.3 USEPA REPORTING**

Monthly status reports will be submitted to the U.S. EPA throughout the operational life of the remedial system. These data will include a summary of water level measurements, system O&M activities and performance, updates on system modifications, analytical results, DNAPL recovery volumes, and other pertinent data.

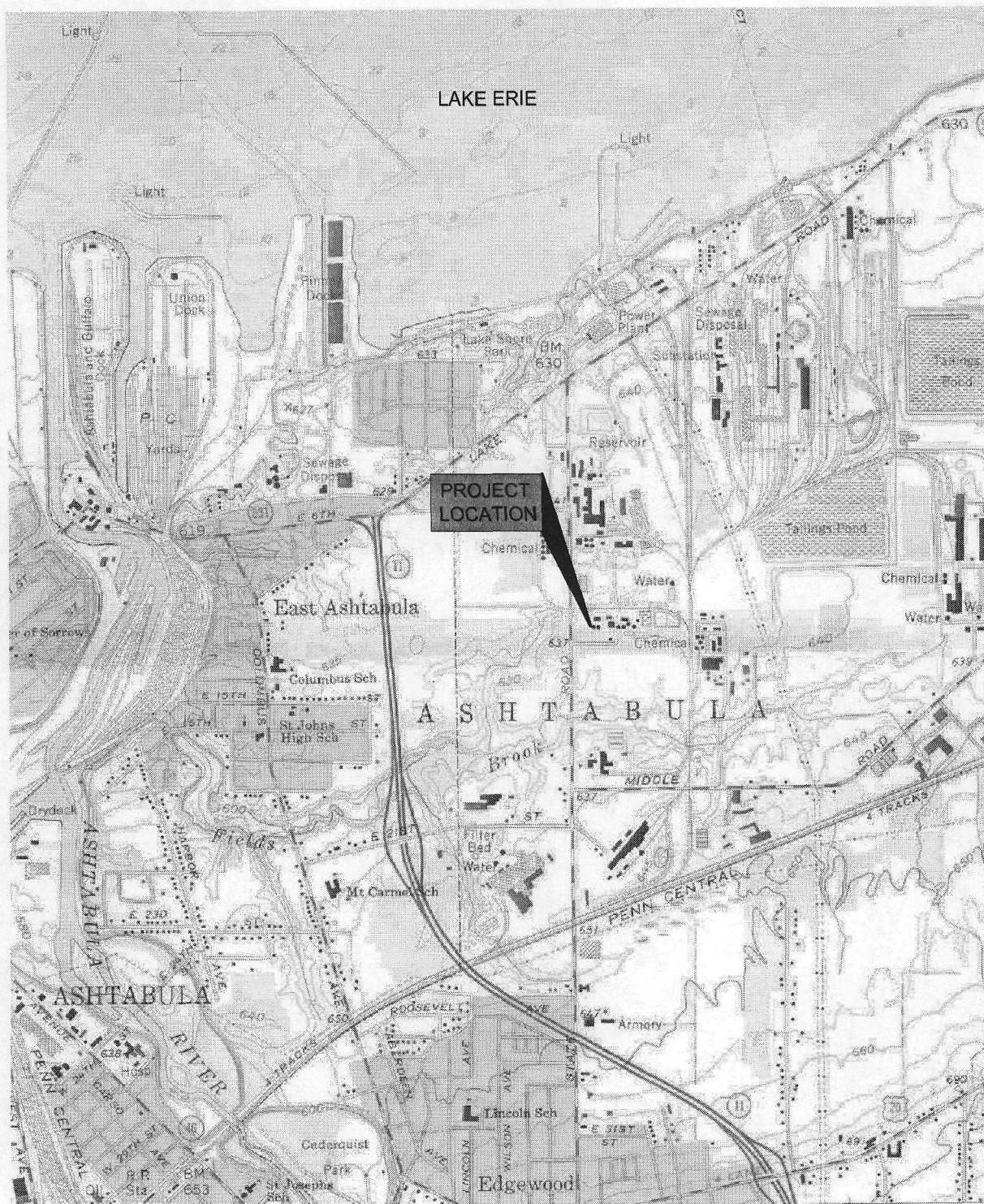
## **SECTIONFOUR**

## **RDRA Field Sampling Plan**

In consideration of the need for supplemental information to delineate DNAPL source areas and evaluate enhanced fluid recovery wells and procedures, the following schedule is proposed:

Task Description	Data
Submit Interim OM&M Manual to USEPA	June 6, 2008
DNAPL Delineation	June – July 2008
Installation of Enhanced Fluid Recovery Wells	August 2008
Fabrication of Enhanced Fluid Recovery Trailer	July – August 2008
Initiate Recovery of DNAPL (6 months)	August – January 2009
Submit Updated OM&M	February 2009

## FIGURES



UNITED STATES GEOLOGICAL SURVEY  
1:24,000 QUADRANGLE  
ASHTABULA NORTH, OHIO  
1960 PHOTO REVISED 1970  
PHOTOINSPECTED 1978

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**URS**

**DETREX CORPORATION**  
ASHTABULA, OHIO

## SITE LOCATION MAP

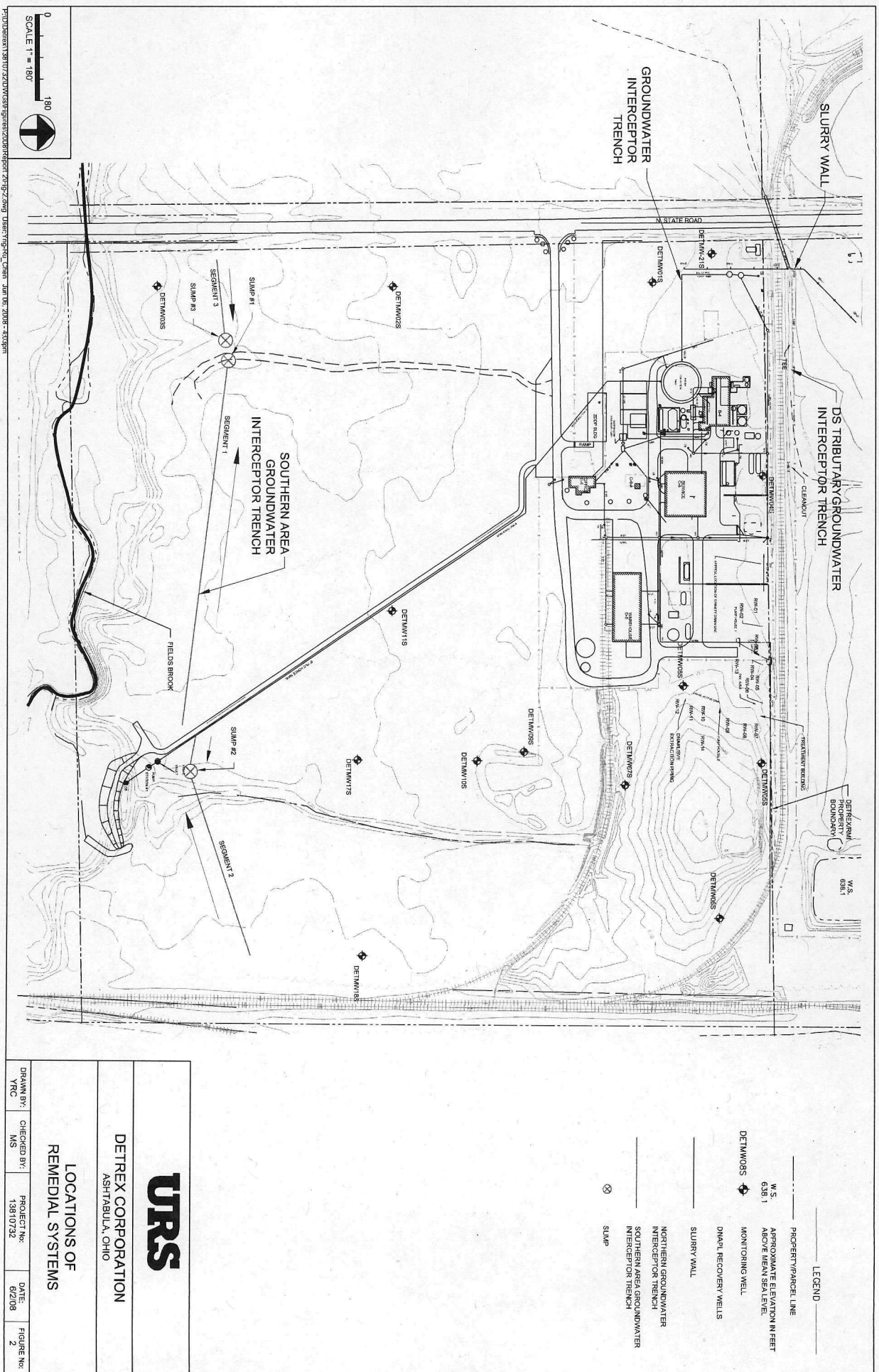
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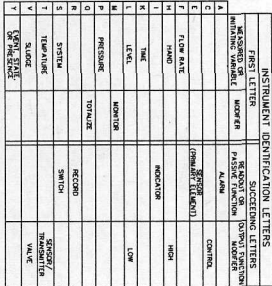
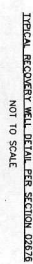
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DATE:  
6/6/08

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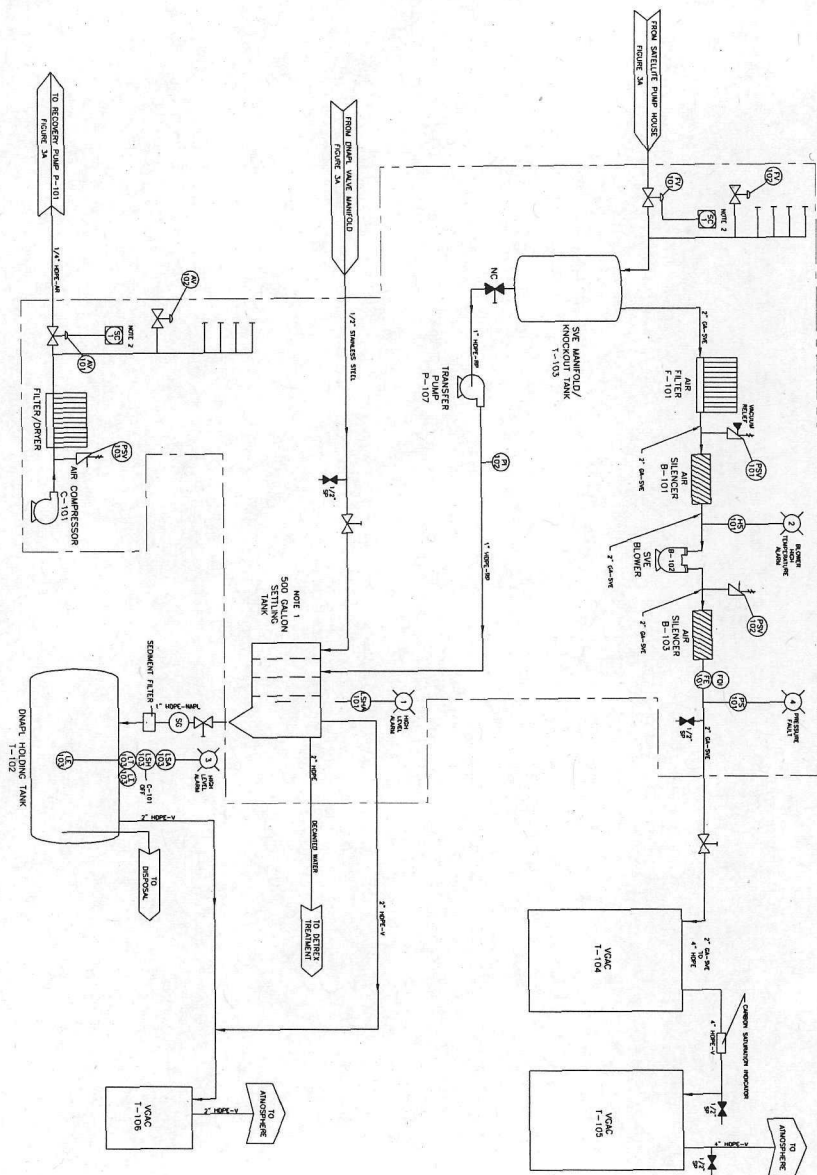
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DETREX CORPORATION				
ASHTABULA, OHIO				
<b>LOCATIONS OF REMEDIAL SYSTEMS</b>				
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0  
NOT TO SCALE  
0



1-101  
DRUM/WATER SEPARATOR  
15 GPM

1-102  
DRUM HOLDING TANK  
1,500-GALLON

1-103  
500 GALLON  
SETTLING TANK

1-104  
VESSEL  
1,500-GALLON

1-105  
VESSEL  
1,500-GALLON

1-106  
VESSEL  
1,500-GALLON

1-107  
TRANSFER  
1,500-GALLON

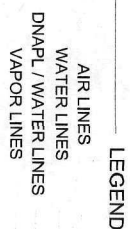
1-108  
DRUM/WATER SEPARATOR  
15 GPM

1-109  
DRUM HOLDING TANK  
1,500-GALLON

1-110  
DRUM HOLDING TANK  
1,500-GALLON

INSTRUMENT IDENTIFICATION LETTERS			
LETTER	DESCRIPTION	FUNCTION	LOCATION
A	ALARM	ALARM	CONTROL
B	BACKFLOW	BACKFLOW	CONTROL
C	COMPRESSION	COMPRESSION	CONTROL
D	DETERMINATION	DETERMINATION	CONTROL
E	FLOW RATE	FLOW RATE	CONTROL
F	FLOW RATE	FLOW RATE	CONTROL
G	FLOW RATE	FLOW RATE	CONTROL
H	FLOW RATE	FLOW RATE	CONTROL
I	LEVEL	LEVEL	CONTROL
J	LEVEL	LEVEL	CONTROL
K	LEVEL	LEVEL	CONTROL
L	LEVEL	LEVEL	CONTROL
M	LEVEL	LEVEL	CONTROL
N	LEVEL	LEVEL	CONTROL
O	LEVEL	LEVEL	CONTROL
P	LEVEL	LEVEL	CONTROL
Q	LEVEL	LEVEL	CONTROL
R	LEVEL	LEVEL	CONTROL
S	LEVEL	LEVEL	CONTROL
T	LEVEL	LEVEL	CONTROL
U	LEVEL	LEVEL	CONTROL
V	LEVEL	LEVEL	CONTROL
W	LEVEL	LEVEL	CONTROL
X	LEVEL	LEVEL	CONTROL
Y	LEVEL	LEVEL	CONTROL
Z	LEVEL	LEVEL	CONTROL

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PROCESS & INSTRUMENTATION DIAGRAM				
DRAWN BY: YRC	CHECKED BY: MS	PROJECT NO: 13810732	DATE: 6/2/08	FIGURE NO: 35



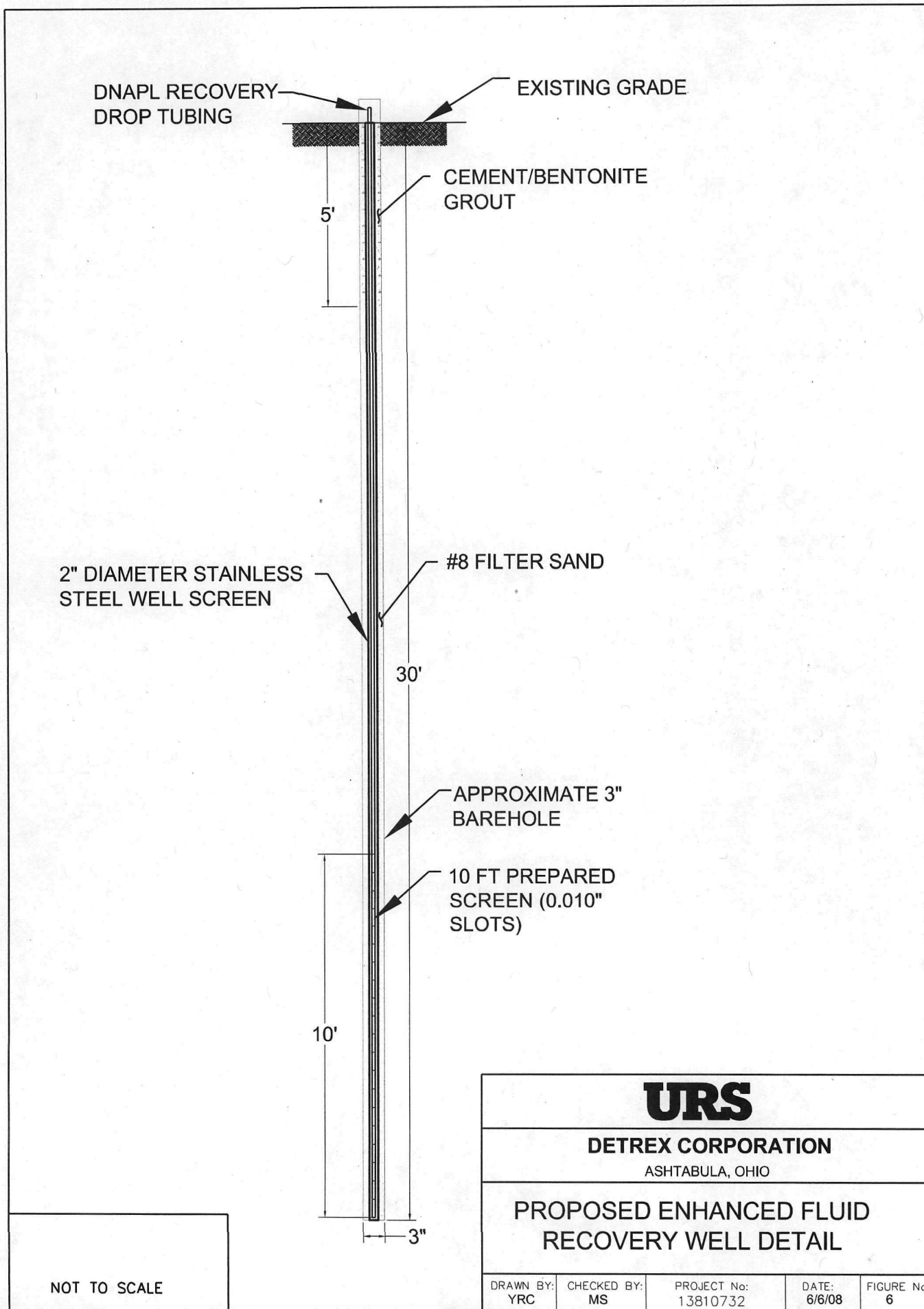
0 4  
SCALE 1" = 4'

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<h1>URS</h1>	
<p>DETREX CORPORATION ASHTABULA, OHIO</p>	
<p>DNAPL RECOVERY SYSTEM TREATMENT BUILDING AND AREA LAYOUT</p>	
<p>DRAWN BY: VRC</p>	<p>CHECKED BY: MS</p>
<p>PROJECT No: 138-10732</p>	<p>DATE: 6/2/08</p>
<p>FIGURE No: 4</p>	

DRAWN BY: YRC	CHECKED BY: MS	PROJECT No: 13810732	DATE: 6/2/08	FIGURE No: 4
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## **TABLES**

**TABLE 1**  
**DETREX CORPORATION**  
**ASHTABULA, OH**  
**SUMMARY OF MAINTENANCE AND MONITORING REQUIREMENTS**

5/27/08

ITEM	DESCRIPTION	FREQUENCY	1 <sup>ST</sup> QUARTER	2 <sup>ND</sup> QUARTER	3 <sup>RD</sup> QUARTER	4 <sup>TH</sup> QUARTER
Groundwater collection and DS tributary interceptor trenches	Inspect pump station for flow and inspect cleanouts for damage	Quarterly				
Air diaphragm pump inspection and repair	Inspect & repair as necessary	Annually or as needed				
AWS & ball float check valve inspection and cleaning	Inspect interior and clean as necessary	Annually				
Bearing service on SVE blower	Bearing service	Every 20,000 hours				
Inline air filter	Replace filter between AWS and SVE blower	As needed based on visual inspection				
Air flowmeter	Remove meter and clean if it becomes plugged	Annually or as needed				

**TABLE 1**  
**DETREX CORPORATION**  
**ASHTABULA, OH**  
**SUMMARY OF MAINTENANCE AND MONITORING REQUIREMENTS**

ITEM	DESCRIPTION	FREQUENCY	1 <sup>ST</sup> QUARTER	2 <sup>ND</sup> QUARTER	3 <sup>RD</sup> QUARTER	4 <sup>TH</sup> QUARTER
Vacuum relief valve	Clean valve if it becomes clogged	Annually or as needed				
AWS transfer pump repair	Regular visual inspection, repair as needed	As needed				
Settling tank cleaning	Clean deposits out of tank	As needed				
Flow totalizer calibration	Performed as needed	Every six months or as needed				
High level switch cleaning	Switches located in separator and settling tank. Remove fouling to maintain proper function	As needed				
High level switch alarm conditions	The high-high switch in the settling tank must be manually tripped to verify that they function.	Monthly				
Groundwater manifold tubing and site tubes	Clean or replace clear tubing on an as-needed basis to allow for inspection of flow and levels.	As needed				

**TABLE 1**  
**DETREX CORPORATION**  
**ASHTABULA, OH**  
**SUMMARY OF MAINTENANCE AND MONITORING REQUIREMENTS**

ITEM	DESCRIPTION	FREQUENCY	1 <sup>ST</sup> QUARTER	2 <sup>ND</sup> QUARTER	3 <sup>RD</sup> QUARTER	4 <sup>TH</sup> QUARTER
Groundwater elevations/ DNAPL thickness	RMW-1, RMW-2, RMW-3, MW-7, MW-10, MW-02S, MW-02D, MW-04S, MW-17D, MW-17S, MW-18D, MW-18S, MW-21, SLURRY NORTH, SLURRY SOUTH.	Quarterly				
Groundwater samples checked VOC	MW-02S, MW-04S, MW-10, MW-17S, MW-18S, RMI-N, RMI-S, MW-21	Quarterly				
Collection Trench VOC and SVOC Analyses	SUMP-1, SUMP-2, SUMP-3	Quarterly				
North Sewer Sump VOC and PCB analyses	North Sewer Sump	Quarterly				

**TABLE 2**  
**OM&M**  
**GROUNDWATER MONITORING WELLS / SUMPS SAMPLING PROGRAM**  
**DETREX FACILITY**  
**ASHTABULA, OHIO**

Well Sump No.	Frequency
MW-02	Quarterly
MW-04S	Quarterly
MW-10S	Quarterly
MW-17S	Quarterly
MW-18S	Quarterly
Sump 1	Quarterly
Sump 2	Quarterly
Sump 3	Quarterly

## **APPENDIX A**

**APPENDIX B**

## **APPENDIX C**